

# Dispex® AA 4040

(old: Dispex® A40)

## general

dispersing agent

Dispex® AA 4040 is a derivative of a family of highly effective, low-viscosity dispersing agents for water-based coating systems, especially suitable for the dispersion of inorganic pigments.

## chemical nature

solution of an ammonium salt of an acrylic polymer in water

## Properties

### physical form

straw-colored liquid

### shelf life

Although Dispex® AA 4040 is freeze-stable it should be stored at temperatures above 5 °C (41 °F) to allow easy handling.

### typical properties (no supply specification)

solvent	water
density at 20 °C (68 °F)	~ 1.30 g/cm <sup>3</sup>
solid content	~ 45 %
active content	~ 40 %
viscosity at 20 °C (68 °F)	~ 400 mPa·s
pH	~ 7.5

## Application

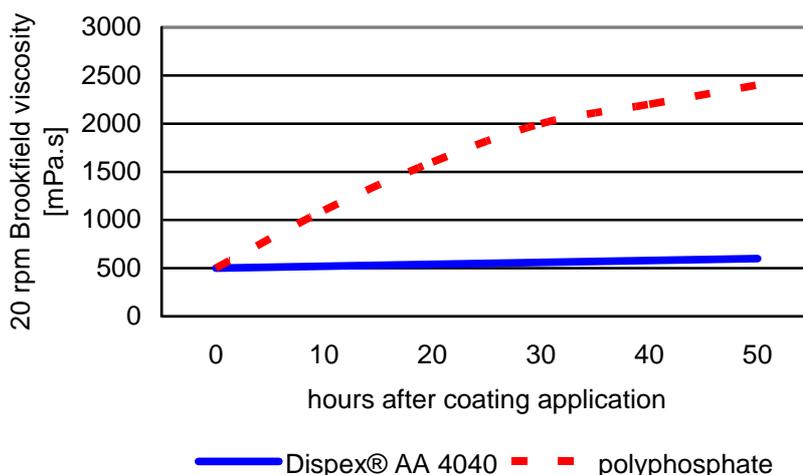
Dispex® AA 4040 preparations are ideal dispersing agents for a wide range of water-based coatings. They can be used as supplied.

The neutralizing alkali used in conjunction with the acrylic polymer can significantly impact the properties of the final coating. Dispex® A40 releases ammonia during the drying process and therefore has little impact on the resistances to water and alkali of the dry film.

The use of Dispex® AA 4040 should be limited to pH 5 – 10.5 and temperatures lower than 70 °C (158 °F) due to potential loss of volatile ammonia.

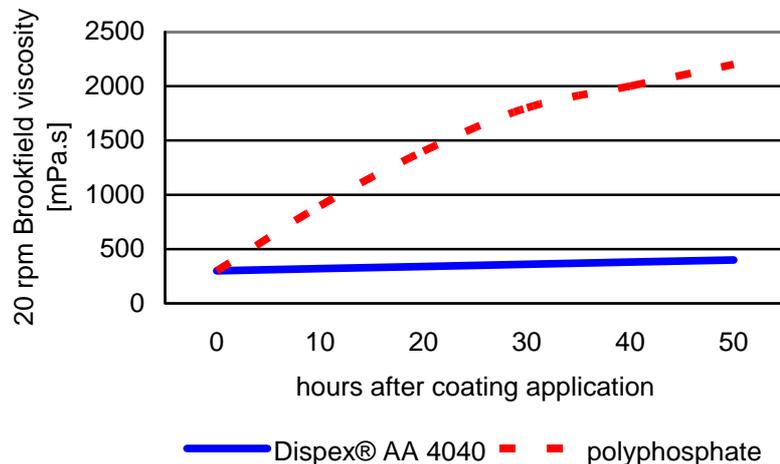
Dispex® AA 4040 is based on an organic polymer and provides improved storage stability of both pigment dispersion and formulated paint when compared with inorganic dispersing agents, e.g., polyphosphate products. There is little or no adverse reaction to high temperatures or pH changes as indicated in the graphs below (examples showing the accelerated effects).

stability of pigment dispersion to interactions between basic pigment and dispersing agent



acrylic latex containing china clay and CaCO<sub>3</sub>, stored at 20 °C (68 °F)

stability of pigment dispersion to heat)



acrylic latex containing china clay, stored at 50 °C (122 °F)

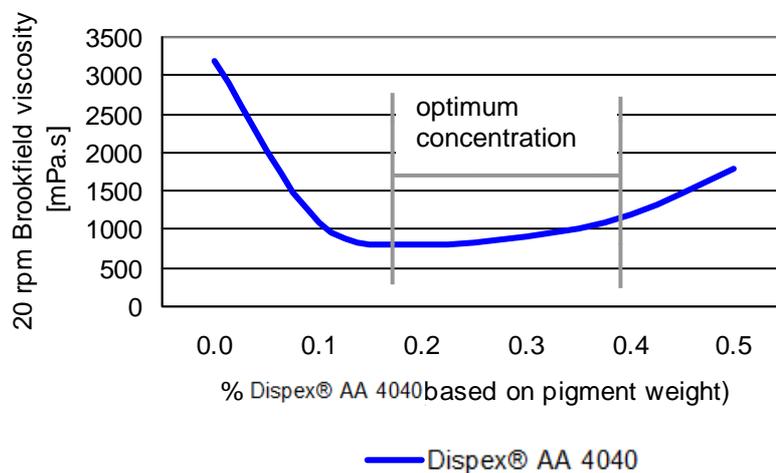
**incorporation**

As opposed to adding the dispersing agent to a pigment slurry, the pigment should be added to heavily stirred water to which the dispersing agent had been added. In general, the pH of the final preparation should be in the region of 8.5 to obtain optimum dispersing efficiency.

The optimum amount of dispersing agent required to form a stable dispersion strongly depends on the pigment’s chemical nature, the particle surface and shape. The polymer base of the latex also plays a very important part in the stability equation. In general, significant overdosing may deteriorate the coating’s properties (e.g., water resistance) and generate an economic disadvantage. Likewise, insufficient dispersing agent will lead to instability on storage.

As with other dispersing agents and because of the batch-to-batch variations of a specific pigment or latex type, the formulator should use 1.5 – 2.0 times the determined optimum level of dispersing agent.

rheology curve of a pigment slurry  
(65 % pigment solids)



**recommended concentrations**

0.5–2.0 % on total pigment weight

#### Safety

When handling this product, please comply with the advice and information given in the safety data sheet and observe protective and workplace hygiene measures adequate for handling chemicals.

#### Note

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights, etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. The agreed contractual quality of the product results exclusively from the statements made in the product specification. It is the responsibility of the recipient of our product to ensure that any proprietary rights and existing laws and legislation are observed.

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